

CSci 421
Introduction to Algorithms
Course Organization

Summer 2004

Handout 1
June 23, 2004

Time/Place: TuTh 9:40-11:10, Mor 221

Instructor: Larry Ruzzo
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Office Hours: TuTh 11:10-12:00

TA: Ethan Phelps-Goodman, epg@cs.washington.edu
Office Hours: Monday 11:00-12:00 in CSE 218.

Prerequisites: CSE 322 and 326.

Text: *Introduction to Algorithms – A Creative Approach*, Udi Manber, Addison-Wesley, 1989

Grading: There will be written homework assignments (about weekly), one or two midterms, and a final. Homeworks may include some small programming projects. Relative weights *approximately* 60%, 15%, 25%, give or take 10%.

Course Web/Email: <http://www.cs.washington.edu/421> Follow the link there to add yourself to the class email list.

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Catalog description: Techniques for the design of efficient algorithms. Methods for showing lower bounds on computational complexity. Particular algorithms for sorting, searching, set manipulation, arithmetic, graph problems, pattern matching, etc.

Objectives: Learn basic techniques for design and analysis of algorithms, including correctness proofs. Learn a number of important basic algorithms. NP-complete and other intractable problems.

Main Techniques:

Design: Induction, Graph search, Divide and Conquer, Greedy, Dynamic Programming, Branch and Bound.
Analysis: Asymptotic Analysis, Recurrences.
Intractability: Reduction.

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Reading Assignments: I'll march through the book pretty much in sequence until further notice. Start with 1–3, excluding 3.5. Chapter 4 is review; I won't cover it explicitly. I'll try to give explicit assignments as we go, but "keep up" is the basic message.

First Homework Assignment: Due Tuesday 6/29.

1. Text 2.2.
2. Text 2.11.
3. Text 2.20. Call the three colors "0,1,2." Initially, assume the circles and chords are in "general position," i.e., no two of them intersect in more than a finite number of points. Then, either extend your proof to the case where placement is unrestricted, or give a counterexample.
4. Text 2.28.
5. Text 2.35.